ORALS

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Impact of Atrial Fibrillation in Patients with STEMI Before and After Primary PCI: Insights from the HORIZONS-AMI Trial

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Background: Recent data suggests that atrial fibrillation (AF) is associated with worse outcomes after PCI for STEMI. We investigated the incidence and impact of baseline and new onset AF in pts undergoing primary PCI from the large, prospective, randomized HORIZONS-AMI trial.
Methods: HORIZONS-AMI was a large-scale, multicenter, international, randomized trial comparing different antithrombotic regimens and stents during primary PCI in STEMI. The primary endpoint was net adverse cardiac events (NACE; the composite of death, reinfarction, ischemia-driven TVR, stroke, or non-CABG-related major bleeding. Pts with and without AF at baseline and with and without new onset AF post-PCI were compared at 3 years.
Results: Baseline AF was present in 69/3,599 patients (1.9%), and AF developed after PCI in an additional 172/3,358 patients (5.1%). Three-year NACE rates were not significantly different between pts who did and did not have AF at baseline (34.2% vs. 26.4%, p=0.12). Nor were the 3-year rates of mortality different in pts with and without baseline AF (10.4% vs 6.7%, p=0.22). In contrast, compared to pts who remained in sinus rhythm, pts with new onset AF after PCI had higher 3-year rates of NACE (45.7% vs. 25.4%), mortality (14.9% vs. 6.3%), reinfarction (14.3% vs. 6.9%), stroke (7.4% vs. 1.6%) and major bleeding (21.0% vs. 8.0%) (all p<0.0001). By multivariable analysis, new onset AF was one of the strongest independent predictors of NACE (HR [95%CI]= 1.80 [1.37, 2.37], p<0.0001) and death (1.88 [1.23, 2.88], p<0.003) at 3 years.
Conclusions: In the large, multicenter HORIZONS-AMI trial, the presence of AF at baseline was not associated with inferior outcomes in pts with STEMI undergoing primary PCI. However, the development of AF post-PCI was associated with markedly higher rates of adverse events and mortality. New approaches to prevent or treat post-PCI AF may further improve outcomes after primary PCI.

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Remote Ischemic Perconditioning Improves Long-Term Clinical Outcome in Patients Undergoing Primary Percutaneous Coronary Intervention for ST-Elevation Myocardial Infarction

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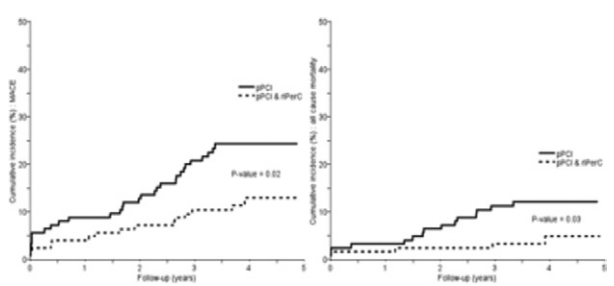
Background: We have previously demonstrated that remote ischemic perconditioning (rIPerC) before primary percutaneous coronary intervention (pPCI) in patients with ST-elevation myocardial infarction (STEMI) improves myocardial salvage. The aim of the present study was to investigate 5-year clinical outcome.
Methods: From February 2007-November 2008, 251 patients with a first acute ST-elevation myocardial infarction met inclusion criteria and were randomized to receive primary percutaneous coronary intervention with (n=126) or without (n=125) remote ischemic perconditioning (intermittent arm ischemia through four cycles of 5-min inflation and 5-min deflation of a blood-pressure cuff). Patient follow-up extended from inclusion date until death or January 2012 (median follow-up duration = 3.9 years (IQR: 3.3-4.2 years)). The study endpoint was MACE (death, rehospitalisation for heart failure, myocardial infarction, and stroke), based on data collected from Danish nationwide registries and medical records.
Results: MACE was significantly reduced in the intervention group compared with the control group, with a cumulative incidence of 13.0% (95% confidence interval (CI): 7.5%-20.1%) versus 24.3% (95% CI: 17.2%-32.2%) and a crude HR of 0.46 (95% CI: 0.25-0.86, p=0.02). The cumulative incidence of all-cause mortality was 4.8% (95% CI: 1.7%-10.6%) in the intervention group versus 12.2% (95% CI: 7.1%-18.6%) in the control group and a crude HR of 0.32 (95% CI: 0.12-0.88, p=0.03).



Conclusions: Remote ischemic perconditioning before pPCI improves long-term clinical outcome in patients with STEMI.

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Bypassing The Emergency Department Is Associated With Faster Reperfusion In Patients With Pre-Hospital ST-Segment Elevation: Findings From The Reperfusion Of Acute Myocardial Infarction In Carolina Emergency Departments (RACE) Project

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Background: Among patients with a pre-hospital diagnosis of STEMI, emergency medical service (EMS) transport from the field directly to the cath lab, thereby bypassing the emergency department (ED), can potentially shorten time to reperfusion.
Methods: We studied 1,687 patients with a pre-hospital diagnosis of STEMI from the Reperfusion in Acute MI in Carolina Emergency Rooms (RACE) project presenting via EMS to 21 North Carolina hospitals for primary PCI between 07/2008 and 12/2009. Reperfusion times were compared between patients evaluated in the ED (ED first) and those transported from the field directly to the cath lab (ED bypass).
Results: Evaluation in the ED occurred in 1,401 (83.0%) patients, while the ED was bypassed in 286 (17.0%) patients. ED bypass occurred more frequently during working hours (Mon to Fri 0701-1800h) compared with off-hours (28.2% vs. 7.6%). Median proportion of ED bypass at the hospital level was 12.2% (IQR 1.6%, 28%). Patients evaluated in the ED were at higher risk with greater frequency of cardiogenic shock, and cardiac arrest and/or need for intubation prior to PCI. Among patients evaluated in the ED, median time from ED arrival to cath lab arrival was 30 (IQR 20, 41) mins. First medical contact to device (FMC2D) time was shorter, and achieved in ≤ 90 mins more frequently in ED bypass patients (Table). In-hospital mortality was lower in the ED bypass group. Excluding high risk patients, FMC2D time remained shorter and achieved in ≤ 90 mins more frequently in the ED bypass group. In-hospital mortality was not different between the two groups.

Demographics, Presentation Characteristics, Treatment Times and Clinical Outcomes of ED First and ED Bypass Patients

Variable, %	ED First (n=1401)	ED Bypass (n=286)	p value
Demographics			
Age, years	59 (51, 69)	60 (51, 69)	0.54
Females	29.1%	22.0%	0.02
Presentation Characteristics			
Cardiogenic shock	11.0%	7.7%	0.11
Cardiac arrest/intubation before PCI	7.4%	1.5%	<0.001
Time Intervals			
First medical contact to hospital arrival, mins	32 (25, 43)	42 (30, 60)	<0.001
Hospital arrival to device, mins	55 (43, 69)	28 (20, 38)	<0.001
First medical contact to device, mins	90 (76, 109)	75 (59, 93)	<0.001
First medical contact to device ≤ 90 mins	50.1%	74.1%	<0.001
Clinical Outcome			
In-hospital mortality	4.6%	1.8%	0.02
Time intervals excluding patients with cardiac arrest/intubation			
First medical contact to device, mins	89 (75, 108)	76 (59, 92)	<0.001
First medcal contact to device ≤ 90 mins	51.7%	74.5%	<0.001
Clinical Outcome excluding patients with cardiac arrest/intubation			
In-hospital mortality	3.4%	1.8%	0.19

Conclusions: The ED is infrequently bypassed in North Carolina hospitals in patients with pre-hospital diagnosis of STEMI. Bypassing the ED is associated with shorter FMC2D time by approximately 15 minutes. Further exploration of patient, EMS, ED and cath lab factors is required to develop ED bypass protocols for appropriate patients.